NOTE.—The following equations (g) and (h), and concluding remark, was enclosed by Prof. Philbrick with the corrected "proof" of his paper, pp. 9–14, and should have appeared in connection with that paper; but by accident the proof was not rec'd till after the sheet was printed, hence their appearance here, and the corrections of the proof, in the *Errata* on p. 32.

"Also

$$\int\frac{\sin^m x\cos^r x dx}{(a+b\sec x)^n}=\int\frac{\sin^m x\cos^{r+n} x dx}{(b+a\cos x)^n}, \tag{g}$$

which may be integrated by (a) or by (b); and

$$\int\frac{\sin^m x\cos^r x dx}{a+b\,\text{co'c}\,x)^n}=\int\frac{\sin^{m+n} x\cos^r x dx}{(b+a\sin x)^n}. \tag{h}$$

which may be integrated by (c) or (d).

Probably almost any combination of trigonometric functions may be integrated, directly or by transformation, by the general formulas above, or by others easily derived from them."

CALCULATION OF TRANSIT OF VENUS BY PROF. BARBOUR.—This calculation is made, by T. H. Safford, Jr.'s modification of Bessel's method, for the position of Louisville, Ky., N. Lat. 38° 14′ 57″.78, Long. 85° 45′ 52″.53 W.; transit to occur on Dec. 6th 1882.

The formulæ will be found in Chauvenet's Spher. and Pract. Ast., Vol. I, and in the Amer. Naut. Almanac for 1882.

$a = A - h\sin(\mu-\lambda)$, $\qquad b = B - EK + Gh\cos(\mu-\lambda)$,

$c = -C + FK - Hh\cos(\mu-\lambda)$, $m = \sqrt{(bc)}$. If $m=a$ the assumed time is correct.—*To find time of* 2nd *contact*. Put φ' = geocentric latitude of the place; λ = longitude West from Greenwich; ρ = dist. from Earth's center; $h=\rho\cos\varphi'$, and $K=\rho\sin\varphi'$.

An easy method of calculating h and K is provided by Amer. Naut. Almanac for 1882, p. 499. $\rho\cos\varphi' = F'\cos\varphi$, and $\rho\sin\varphi' = G'\sin\varphi$, in which φ = geographical latitude, and logs F' and G' are given in a table.

$$\begin{array}{llll}
\log\cos\varphi = & 9.8950487 & \log\sin\varphi = & 9.7917506 \\
\log F' = & \underline{.000578} & \log G = & \underline{n\ .0024355} \\
\log h = & 9.8956267 & \log K = & n9.7941861
\end{array}$$

(n before a log. means that the number corresponding is negative.)

To find a. $\mu = 38°\ 13'\ 3''$ for epoch $2^h\ 24^m\ 57^s$ (Gr. mean time).

$\lambda = 85°\ 45'\ 52''.53$; $\therefore \mu-\lambda = -47°32'49''.53$ or $312°\ 27'\ 10''.47$. $\therefore \log\sin(\mu-\lambda) = n9.8679576$; $\log\cos(\mu-\lambda) = 9.8292395$

$$\begin{array}{ll}
\log h = & \underline{9.8956267} \\
\log h + \log\sin(\mu-\lambda) = & 9.7635843.
\end{array}\quad \therefore h\sin(\mu-\lambda) = .580209.$$

A, for given epoch, $= 18.8281658$; $+.580209 = 19.4083748 = a$.